FPL

SEP 17 2003

L-2003-226
10 CFR § 50.73

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Re: Turkey Point Unit 3
Docket No. 50-250
Reportable Event: 2003-009
Date of Event: July 18, 2003
Component Cooling Water System
Configuration Outside Technical Specifications

The attached Licensee Event Report 250/2003-009 is being submitted pursuant to the requirements of 10 CFR § 50.73(a)(2)(v)(B) to provide notification of the subject event.

If there are any questions, please call Walt Parker at (305) 246-6632.

Very truly yours,

Michael D Kreane FOR/

Terry O. Jones
Vice President
Turkey Point Nuclear Plant

WP

Attachment

cc: Regional Administrator, USNRC, Region II
Senior Resident Inspector, USNRC, Turkey Point Nuclear Plant

IE22

NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

# LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

| 1. FACILITY NAME | 2. DOCKET NUMBER | 3. PAGE |
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**4. TITLE**

Component Cooling Water System Configuration Outside Technical Specifications

| 5. EVENT DATE | | | 6. LER NUMBER | | | 7. REPORT DATE | | | 8. OTHER FACILITIES INVOLVED | |
|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | MONTH | DAY | YEAR | FACILITY NAME | DOCKET NUMBER |
| 07 | 18 | 2003 | 2003 | - 009 - | 00 | 09 | 17 | 2003 | FACILITY NAME | DOCKET NUMBER |

| 9. OPERATING MODE | 1 |
|---|---|
| 10. POWER LEVEL | 100 |

**11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 20.2201(b) | | 20.2203(a)(3)(ii) | | 50.73(a)(2)(ii)(B) | | 50.73(a)(2)(ix)(A) |
| | 20.2201(d) | | 20.2203(a)(4) | | 50.73(a)(2)(iii) | | 50.73(a)(2)(x) |
| | 20.2203(a)(1) | | 50.36(c)(1)(i)(A) | | 50.73(a)(2)(iv)(A) | | 73.71(a)(4) |
| | 20.2203(a)(2)(i) | | 50.36(c)(1)(ii)(A) | | 50.73(a)(2)(v)(A) | | 73.71(a)(5) |
| | 20.2203(a)(2)(ii) | | 50.36(c)(2) | X | 50.73(a)(2)(v)(B) | | OTHER |
| | 20.2203(a)(2)(iii) | | 50.46(a)(3)(ii) | | 50.73(a)(2)(v)(C) | | Specify in Abstract below or in NRC Form 366A |
| | 20.2203(a)(2)(iv) | | 50.73(a)(2)(i)(A) | | 50.73(a)(2)(v)(D) | | |
| | 20.2203(a)(2)(v) | | 50.73(a)(2)(i)(B) | | 50.73(a)(2)(vii) | | |
| | 20.2203(a)(2)(vi) | | 50.73(a)(2)(i)(C) | | 50.73(a)(2)(viii)(A) | | |
| | 20.2203(a)(3)(i) | | 50.73(a)(2)(ii)(A) | | 50.73(a)(2)(viii)(B) | | |

**12. LICENSEE CONTACT FOR THIS LER**

| NAME | TELEPHONE NUMBER (Include Area Code) |
|---|---|
| Walter J. Parker, Licensing Manager | (305) 246 - 6632 |

**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO EPIX | | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO EPIX |
|---|---|---|---|---|---|---|---|---|---|---|
| - | - | - | - | - | | - | - | - | - | - |

| 14. SUPPLEMENTAL REPORT EXPECTED | | | 15. EXPECTED SUBMISSION DATE | MONTH | DAY | YEAR |
|---|---|---|---|---|---|---|
| | YES (If yes, complete EXPECTED SUBMISSION DATE). | X NO | | | | |

**16. ABSTRACT** *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*


On July 6, 2003, in preparation for performing the Unit 3 "C" Component Cooling Water (CCW) Pump In-service Test (IST), it was questioned as to whether or not the CCW system configuration used for IST, conforms to the allowable Technical Specification (TS) 3.7.2, "Component Cooling Water System" requirements.

Due to the Turkey Point CCW system configuration, whenever the 3C CCW pump IST is performed, the CCW system headers are split and the 3B CCW pump control switch is placed in pull-to-lock. This configuration is necessary in order to establish the required IST test flow rate for the 3C CCW pump. This renders the 3B CCW pump out-of-service (inoperable) for the duration of the 3C CCW pump IST. The Operating Procedure for the CCW System requires that, whenever the 3B CCW pump is inoperable, its breaker must be racked out and the 3C CCW pump must be electrically aligned to the 3B 4160 volt electrical bus. This action enables an interlock for the 3C CCW pump to receive the 3B pump's auto-start signals. The IST procedure does not take this into account.

Thus, for the 3C CCW pump IST, the CCW system configuration for postulated accident mitigation can only be credited with one (1) CCW pump/heat exchanger serving one CCW header for the duration of the IST. This is less than the minimum required per TS 3.7.2, and is therefore reportable under 10CFR50.73(a)(2)(v)(B).

The cause of this event was due to a procedural deficiency resulting in unacceptable CCW system testing configurations. The procedural deficiencies have been corrected. The health and safety of the public were not affected by this event.

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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

**Description of the Event**

On July 6, 2003, while planning to perform the 3C Component Cooling Water (CCW) Pump [CC:P] In-service Test (IST), an on-shift operator questioned the CCW system configuration that is specified for CCW pump IST. The concern related to whether the CCW system configuration, required for pump IST, conforms to the allowable Technical Specification (TS) 3.7.2, "Component Cooling Water System" requirements.

In performing the IST procedure, the 3A and 3B CCW headers are required to be split for purposes of establishing the required pump test flow rate, since individual pump flow instrumentation is not provided. In this configuration, the 3A CCW pump is aligned to the 3A CCW header through the 3A CCW heat exchanger [CC:hx]; and the 3B and 3C CCW pumps are aligned to the 3B CCW header through the 3B and 3C CCW heat exchangers.

Whenever the 3A or 3B CCW pump is placed out-of-service (OOS), the CCW System Operating Procedure (OP)) requires that the 3C CCW pump be electrically aligned to the electrical bus that powered the pump being taken OOS and the OOS pump 4 KV breaker [BK:cc] be racked out. The 3C CCW pump is also interlocked with the pump taken out of service, such that, with the out-of-service pump electrical supply breaker racked out, the 3C CCW pump is enabled to receive the OOS pump sequencer initiated auto-start signals. After further investigation on July 18, 2003, it was recognized that the IST procedure for testing the 3C CCW pump does not take this into account. As such, the IST procedure calls for the 3B CCW pump to be placed in pull-to-lock, with its electrical supply breaker remaining racked in. With this configuration, the swing 3C CCW pump would not be interlocked to receive the required auto-start signals. Effectively, the 3B CCW pump is considered inoperable, with its control switch in pull-to-lock. The 3C CCW pump is considered inoperable, since, with the 3B CCW pump OOS and its 4 KV breaker still racked in, the 3C CCW pump does not have the sequencer auto-start feature enabled.

This test configuration results in one (1) CCW pump serving one (1) CCW heat exchanger and one (1) CCW header. This is less than minimum required per TS 3.7.2. This condition was determined to be reportable under 10CFR50.73(a)(2)(v)(B).

**Background**

The Component Cooling Water System is designed as a closed-cycle system composed of a surge tank, three pumps, three heat exchangers, a pump supply header, a header between the pump discharges and CCW heat exchanger inlets, a heat exchanger outlet header, and piping to and from various loads. The pumps are each 100% capacity and the heat exchangers are each 50% capacity. The headers are normally in an open configuration, such that the pumps share a common supply and a common discharge and the heat exchangers share a common outlet. Heat is removed from the CCW system by the flow of Intake Cooling Water (ICW) [BS] through the tube side of the CCW heat exchangers. The closed cycle design assures a monitored intermediate barrier between the components handling reactor coolant system fluid and the ultimate heat sink.

The design basis of the Component Cooling Water System is to provide sufficient heat removal from the Engineered Safety Features to the ultimate heat sink (ICW System) under post accident conditions. The system is designed with sufficient capability to accommodate the failure of any single, active component without resulting in undue risk to the health and safety of the public following a Maximum Hypothetical Accident

(MHA). The most limiting single active failure considered is the loss of one emergency diesel generator, which results in only one CCW pump starting automatically to mitigate the consequences of the MHA. The combination of one CCW pump supplying two CCW heat exchangers is capable of meeting accident heat loads.

The CCW system is periodically placed in a split header configuration for short periods of time to allow the performance of inservice testing of the CCW pumps. This configuration would also be used whenever the spent fuel cask would be moved over CCW piping. During these periods of split header configuration, the CCW system is not able to serve the needs of a fully redundant and automatic two-train fluid system. Therefore, the requirements of Technical Specification 3.7.2 "Component Cooling Water System" and the precautions and limitation of Operating Procedure 3-OP-030, "Component Cooling Water" are imposed during these CCW system configurations.

## Cause of the Event

The cause of the event was an In-Service Test (IST) procedural deficiency resulting in unacceptable CCW testing configurations. The requirement to rack out the 3B CCW pump breaker, when placing the pump control switch in pull-to-lock, was not specified in the IST procedure. Had it been specified, the auto-start feature of the 3C CCW pump would have been enabled, and the system configuration would remain in compliance with technical specification requirements.

The IST procedure, 3-OSP-030.1, Component Cooling Water Pump Inservice Test, specifies placing the 3B CCW pump control switch in pull-to-lock, when testing the 3C CCW pump. This conflicts with the proper system configuration specified in the CCW Operating Procedure, 3-OP-030. In this procedure, the 3B CCW pump breaker is racked out and the 3C CCW pump is electrically aligned to the 3B 4160 volt bus, whenever the 3B CCW pump is out of service or must be prevented from starting. With this action, the 3C CCW pump is enabled with the required auto-start design features, and compliance with Technical Specification 3.7.2, "Component Cooling Water System" requirements is maintained.

## Analysis of the Event

Upon further investigation, the CCW IST system configuration was concluded to be reportable on July 18, 2003. It was recognized that the CCW pump In-Service Test (IST) procedure created a CCW system configuration that did not conform to the TS 3.7.2, "Component Cooling Water System" requirements. Specifically, the only time that this configuration existed, when performing CCW pump IST, was when the 3C CCW pump was being tested. For the 3C CCW pump test, the CCW headers were split to establish the required pump test flow rate and the 3B CCW pump control switch was placed in "pull-to-lock". This was done as a precautionary measure to avoid inadvertently starting the 3B CCW pump on the 3B CCW header, while testing the 3C CCW pump. The intent was to avoid excessive flow in the system that is created by running two (2) CCW pumps through two (2) CCW heat exchangers.

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Analysis has shown that this precautionary measure of placing the 3B CCW pump controller in pull-to-lock, in order to avoid excessive flow through the two (2) "B" train CCW heat exchangers, is not necessary for short periods of time, such as during performance of the 3C CCW pump IST.

This concern does not exist for the Unit 4 CCW system due to upgraded heat exchanger design. However, since the IST procedure is also used in performance of Post Maintenance Testing (PMT), this single pump/single train configuration procedural discrepancy was also applied, when performing PMT for the "B" CCW pump, to both Units 3 and 4. In this case, the "B" CCW pump is considered inoperable until it successfully passes its PMT; but to pass its PMT, it must be run with its electrical supply breaker racked in.

Regardless, the CCW IST procedure, 3/4-OSP-030.1, continued to specify this pump configuration for the 3C CCW pump IST. This constitutes a latent procedural discrepancy that resulted in unacceptable CCW testing configurations.

In placing the 3B CCW pump switch in "pull-to-lock", the 3B CCW pump is rendered inoperable during the performance of the 3C CCW pump IST. If called upon to perform its safety function, the only CCW pump that would strip from its electrical bus and reload on its respective emergency diesel generator, would be the 3A CCW pump. The 3B CCW pump would receive a start signal from the sequencer action, but would not start because its control switch was in pull-to-lock. The 3C CCW pump would strip from its electrical bus, but would not restart because its auto-start feature was never enabled. This results in the 3A CCW pump supplying one CCW heat exchanger, during the period that the 3C CCW pump is being tested. This does not meet the accident heat load requirements.

This is reportable under 10CFR50.73(a)(2)(v)(B).

**Analysis of Safety Significance**

As stated above, the only CCW system configuration that could have resulted in not meeting the accident heat load requirements was when the system was in a split header configuration and the 3B CCW pump was declared out of service [3B CCW pump control switch in pull-to-lock during IST of the 3C CCW pump].

The practice of placing either of the 3B CCW pump out-of-service (or in a pull-to-lock condition) is addressed in Operating Procedure 3-OP-030, Component Cooling Water. Precaution/Limitation 4.6 states, "If, for any reason, CCW Pump A or B is inoperable, its breaker shall be open and racked out, and the 3D 4160 KV bus [which powers the 3C CCW pump] should be aligned to the bus that powers the inoperable pump so that the 3C CCW Pump will start on the sequencer."

The IST procedure, 3-OSP-030.1, does not contain this precaution. When testing the 3C CCW pump, the 3B CCW pump was placed in pull-to-lock per step 7.3.13.7 of 3-OSP-030.1. At this point, the 3A and 3C pumps were running, with each CCW header being supplied by a single pump. Although the 3C CCW pump was running for the test, it was considered inoperable during the test. As a result of this consideration, performance of step 7.3.13.7 of 3-OSP-030.1 requires entering TS Action Statement 3.7.2.b, since only one CCW pump is considered operable at this time. TS Action Statement 3.7.2.b allows continued plant operation with only one operable CCW pump for 72 hours, to allow actions to restore another CCW pump to operable status prior to shutting down the plant.

If the CCW system was called upon to mitigate the consequences of an accident, coincident with a Loss Of Offsite Power, during the 3C CCW pump IST testing period, the resulting system configuration would be the 3A CCW pump supplying the "A" CCW header only. Under accident conditions, control room operators immediately address the status of the CCW system. Verification of proper CCW system alignment/operation is performed in Step 9 of Emergency Operating Procedure 3/4-EOP-E-0.

Additionally, the IST procedure, 3-OSP-030.1, contains a provision that "A dedicated operator shall be assigned to assist with this test to restore the system to normal at the direction of the test coordinator or the Nuclear Plant Supervisor in case of emergency, abnormal temperatures associated with the CCW System, or any other reason to abort the test". As such, existing plant procedures establish precautionary and mitigating actions for the CCW pump IST system configuration.

With these measures in place, the CCW system would not have been precluded from meeting its design basis requirements. The CCW system restoration is directed by the IST procedure and the EOP procedure, and the required number of pumps and heat exchangers were operable and available, during the 3C CCW pump IST system alignment. This event did not compromise the health or safety of plant personnel or the general public.

## Risk Significance

A scoping risk assessment was performed, assuming the 3B and 3C CCW pumps were out of service, along with their respective heat exchangers. As such, the Emergency Core Cooling Systems (ECCS) that are served by CCW were also taken out of service (i.e. 3A and 3B High Head Safety Injection pumps [BJ:p], 3A, 3B and 3C Emergency Containment Coolers [BK:clr], and 3A and 3B Residual Heat Removal pumps [BP:p]). Although 3/4-EOP-E-0, Step 9 instructs the Control Room Operators to start a CCW pump and/or cross-connect the CCW headers, no credit was taken for these actions (i.e. no restoration from the IST CCW system configuration) for this scoping risk assessment.

The core damage frequency for this scoping risk assessment was calculated to be 3.11E-4/Yr. For the IST test duration, up to one (1) full day, the core damage frequency was calculated to be less than 1.0E-6. The risk associated with the event was not significant.

## Corrective Actions

(1) Procedure 3/4-OSP-030.1 has been updated to ensure precaution/limitation Step 4.6 of 3-OP-030 is incorporated (i.e. Rack out the 3B CCW pump breaker whenever placing the 3B CCW pump out of service).

(2) The IST pump testing procedures for the Intake Cooling Water (ICW) and the Residual Heat Removal (RHR) systems were reviewed to ensure that appropriate LCO action statements are followed. These procedures were found acceptable.

(3) Additional procedure change to 3/4-OSP-030.1 will be provided to reflect the correct conditions for performing CCW pump IST and the special circumstances of PMT.

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Additional Information

EIIS Codes are shown in the format [EIIS SYSTEM: IEEE component function identifier, second component function identifier (if appropriate)].

Failed Components Identified NONE

Similar Events

There have been no previous similar events at Turkey Point Unit 4. The IST event configuration discrepancy only applies to Unit 3. Previous Unit 3 CCW pump ISTs, performed since 1995 when the "pull-to-lock" feature was added to the 3-OSP-030.1 IST procedure, constitute a similar event to this reported event. Additionally, previous Unit 3 and Unit 4 CCW pump PMTs also constitute a similar event.